PARISIAN RUIN WITH RANDOM DEFICIT-DEPENDENT DELAYS FOR SPECTRALLY NEGATIVE LÉVY PROCESSES

Borovkov Konstantin

✧ *Email: borovkov@unimelb.edu.au; The University of Melbourne, School of Mathematics and Statistics, Melbourne, Australia.*

We consider an interesting natural extension to the Parisian ruin problem under the assumption that the risk reserve dynamics are given by a spectrally negative Lévy process. The distinctive feature of this extension is that the distribution of the random implementation delay windows' lengths can depend on the deficit at the epochs when the risk reserve process turns negative, starting a new negative excursion. This includes the possibility of an immediate ruin when the deficit hits a certain subset. In this general setting, we derive a closed-from expression for the Parisian ruin probability and the joint Laplace transform of the Parisian ruin time and the deficit at ruin. This is joint work with Duy Phat Nguyen.